LOWER LEVEL SPOUT RUN BRIDGE
George Washington Memorial Parkway, westbound lane, spanning Spout Run
Arlington Vicinity
Arlington County
Virginia

HAER NO. VA-80

HAER
VA
7-ARLV,
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WRITTEN HISTORICAL AND DESCRIPTIVE DATA

HISTORIC AMERICAN ENGINEERING RECORD
National Park Service
Department of the Interior
P.O. Box 37127
Washington, D.C. 20013-7127

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I. INTRODUCTION

Location:	George Washington Memorial Parkway milepost 7.32, 7.8 miles from Interstate 495; carries westbound GWMP over Spout Run immediately west of discharge into the Potomac River.
FHwA Structure No.:	3300-011P.
Date of Construction:	1957-1958.
Type:	Reinforced concrete rigid frame arch bridge.
Designer:	Bureau of Public Roads (BPR) with approval from the National Park Service. William H. Haussmann, Chief Architect, National Park Service. H.J. Spelman, Regional Engineer, BPR Region 15. T.D. Harris, BPR District Bridge Engineer for construction.
Contractor:	Troitino and Brown Inc., Asheville, NC.
Present Owner:	National Capital Region, National Park Service.
Present Use:	Carries non-commercial traffic on the westbound GWMP over Spout Run.
Significance:	Built as part of the GWMP, this bridge is a late example of the continued use of the "rustic" style for parkway bridges.
Project Information:	Documentation of the George Washington Memorial Parkway and Clara Barton Parkway was undertaken as a multi-year project by the Historic American Buildings Survey and the Historic American Engineering Record (HABS/HAER), a combined division of the National Park Service, Robert Kapsch, Chief. The project was sponsored by the Park Roads Program of the National Park Service, John Gingles, Deputy Chief, Engineering and Safety Services Division. The Project Supervisor was Sara Amy Leach, HABS Historian. Bridge reports were prepared by Elizabeth M. Nolin (1988); Michael P. Kucher (University of Delaware, 1993); and Jennifer P. Wentzien (University of Washington, 1994). HABS Report No. VA-69 prepared by Timothy Davis (University of Texas) provides an overview history of the entire parkway project. Jack E. Boucher and Jet Lowe produced the large-format photographs. The Washington-based summer 1994 documentation team was headed by landscape architect Tim Mackey (Harvard University, Graduate School of Design).

II. HISTORY

The Low Level Spout Run Bridge is one of several structures designed and built in the 1950s to carry the George Washington Memorial Parkway (GWMP) closer to a proposed terminus at Great Falls, Virginia. The project was part of an extension of the GWMP from Spout Run to the CIA in Langley, VA. The bridge carries Spout Run below the westbound GWMP immediately west of its discharge into the Potomac River. Contract drawings suggest that extensive sitework was performed to relocate Spout Run and create the desired profile grade[1].

The bridge was designed by BPR engineers[2] in collaboration with the National Park Service (NPS) architects in 1956. National Capital Parks Associate Superintendent Harry T. Thompson approved the drawings in 1957. The rigid frame structure is based on a structural design developed in the early 1920's by Arthur G. Hayden and developed extensively for the Westchester County Park System in New York[3]. The design is skewed frame, the analysis of which is slightly more complicated than the orthagonal rigid frames used at the earlier Wellington Underpass (HAER No. VA-42B). A simplified methodology for skewed frames had been developed by 1950 and allowed highway designers greater ability to maintain roadway curvature across bridge structures.[4]

A short distance upstream is the Spout Run Bridge, westbound (HAER No. VA-86), completed in 1949 to carry Spout Run beneath the connection from the GWMP to Lee Highway. The two structures have similar native stone masonry facing, recalling earlier designs by Gilmore Clarke for the Mount Vernon Memorial Highway (MVMH). Class "A" masonry stone from the River Road quarries near Bethesda, Maryland. is specified, following the precedent for native stone on the MVMH in the early 1930s. The NPS continues to specify this local stone on more recent GWMP projects. Another nearby bridge, the High Level Spout Run Bridge (HAER No. VA-79) completed in 1959 , provides a contrast between the earlier, rather heavy, "rustic" style for parkway structures and contemporary emphasis on the expression of the lightness of structure.

Description

The Low Level Bridge over Spout Run is a reinforced concrete rigid frame arch bridge with stone facing. The arch span is 20' and is on a 40 degree skew to the roadway. The bridge was built with a 24' roadway with 6' sidewalks on each side and 1'-6" wide stone parapets. The total width is 39'. The arch is an arc on a radius of 28'-2 7/8" with a rise of 5'-6" above the spring line.

Reinforced concrete footings rest on solid rock. Abutments and wing walls are reinforced concrete with native stone facing. The superstructure is a reinforced concrete rigid frame arch extending the width of the roadway. Plywood forms were used for the concrete which is exposed on the inside face of the frame. The deck is reinforced concrete with a stone or gravel sheathing and a paved surface. Class "A" stone masonry

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[1]Bureau of Public Roads, "Contract Drawing G-2136," 1957.

[2]Initials V.H. on BPR "Contract Drawings G 2348 P.F.," 1957.

[3]Arthur G. Hayden and Maurice Barron, The Rigid Frame Bridge, 1931, 3rd edition 1950.

[4]Ibid., first apppearing in 1950 edition.

is from Stoneyhurst Quarry near Bethesda, Maryland. Parapet copings and arch ringstones are black and white dimensioned granite from Mount Airy, North Carolina. Stone facing is anchored to the wingwalls and abutments with steel anchor bars.

BPR Standard Specifications F.P.- 57[5] and AASHO design loading H20- 44[6] were used. The H-20 design load was used on all bridges researched for the GWMP project. H20- 44 is a standard highway design load based on a 20-ton two-axle truck loading and last revised in 1944. Final costs were reported as $100,395.55 for construction and $5,753. for engineering.[7]

Alterations
The roadway has been widened to 36', eliminating the sidewalks.

III. SOURCES

U.S. Department of Commerce, Bureau of Public Roads. Plans for Proposed Project 1A6. Microfiche reductions of original construction drawings on file at the Bridge Inspection office of the Eastern Federal Lands Highway Division, Federal Highway Administration, Sterling Virginia. Also available on microfiche from National Capital Region Park Headquarters, National Park Service, Washington D.C.

U.S. Department of Commerce, Bureau of Public Roads, "Final Construction Report Project 1A6, Lower Level Bridge on Spout Run, Arlington County, Virginia," E. Tarwater, Division Engineer, 9/28/59. On deposit at the remote storage facility of the FHwA office in Sterling, Virginia.

U.S. Department of the Interior, Historic American Buildings Survey (HABS), No. VA-69, "George Washington Memorial Parkway," 1994. Prints and Photographs Division, Library of Congress, Washington D.C.

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[5]U.S. Bureau of Public Roads, Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, F.P.- 57, 1957.

[6]American Association of State Highway Officials, Standard Specifications for Highway Bridges, 6th edition, 1953.

[7]Bureau of Public Roads, "Final Construction Report, Project 1A6," 1959.